EPR 100

ELECTRONIC PRESSURE REGULATOR

PNEUMATIC DIVISION

MATRIX
mechatronics

EPR 100 - ELECTRONIC PRESSURE REGULATOR

The EPR 100 is a closed loop electronic pressure regulator able to convert a variable analog or digital input signal (current, voltage, keypad, RS-232) into a proportional pneumatic output and maintain with precision a required downstream pressure. Equipped with an 8 bit microcontroller, it can process signals and commands, carry out complex functions and easily interface with other control/monitor systems via serial RS-232, perfectly integrating in applications which had required more elaborate and expensive systems up till now.

EPR 100 D

The compact and functional design, overall performances and reliability make for an effortless integration in any advanced pneumatic system that requires an active component quickly adaptable to any specific requirement.

The input signal, which may be analog (0-5 V, 0-10 V, 4-20 mA) or digital (serial RS-232, keypad/display), is processed by the microcontroller and converted into a proportional pressure output by using PWM (Pulse Width Modulation) controlled high-speed solenoid valves for feed and exhaust functions.

An integrated pressure sensor continuously monitors the output pressure of the EPR 100 providing a feedback to the controller that compares this value to the desired setpoint, which is set by the input signal. Thus any variation of the output pressure can be quickly and precisely compensated in order to maintain the requested downstream pressure. This closed loop system has a reaction time of less than 5 ms. In addition, the EPR 100 may supply an analog output (0-7 V) in proportion to the downstream pressure (0-7 bar).

When combined with an external volume booster (power stage), the EPR 100 operates as a proportional pilot-valve guaranteeing extremely fast response times and high precision even at higher flow rate levels.

The EPR 100 is available in two basic versions:

- **EPR 100 A** equipped with analog/digital input interface (0-5 V, 0-10 V, 4-20 mA*, RS-232) and status leds.
- **EPR 100 D** equipped with analog/digital input interface (0-5 V, 0-10 V, 4-20 mA*, RS-232), keypad/display user interface, status leds.

**Available upon request.*

TYPICAL APPLICATIONS

The EPR 100 may normally be used in any advanced industrial application which requires to quickly adjust and maintain with precision a pressure value setting in order to easily manage complex processes or functions. These include positioning, tensioning, movement, speed and force control in robotic equipments, tensioning system, testing devices, winding devices, dispensing systems, welding equipments, clamping devices, etc. within food, automotive, textile, paper, packaging and machine tools industries.

EPR 100 D

FEATURES

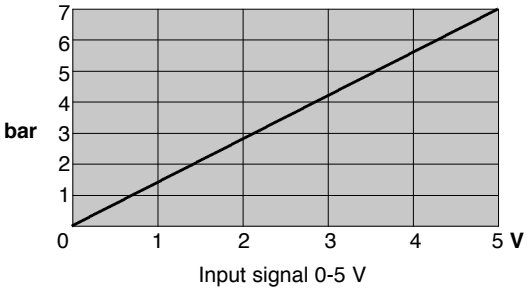
- Compact size and lightweight, designed to meet IP65 requirements
- Very fast response times for a precise and reliable output pressure regulation
- Unaffected by shocks, vibrations or accelerations. Can be installed at any angle
- Quickly adaptable to any specific requirement with programmable configuration
- Easy to read digital display for output pressure visualization and user settings
- Low power consumption. No air consumption in steady condition
- Remote control through serial RS-232

GENERAL CHARACTERISTICS

Dimensions	- 118 x 70 x 40 mm ([1])
Weight	- 400 g
Protection ratio	- IP60 (IP65 upon request)
Pneumatic connections	- G 1/8
Operating temperature	- -10 to +50 C°
Handled fluid	- Filtered, non-lubricated and dry air
Filtration ratio	- 20 μ
Supply voltage	- 24 Vdc ± 10%
Maximum power consumption	- 2 W
Maximum flow rate	- 60 Nl/min @ 6 bar
Reaction time	- < 5 ms
Response time (*)	- 60 ms ([2]) - 100 ms ([3])
Sensibility	- < 0,5 % F.S.
Linearity	- < 0,5 % F.S.
Hysteresis	- < 0,5 % F.S.
Repeatability	- < 0,5 % F.S.

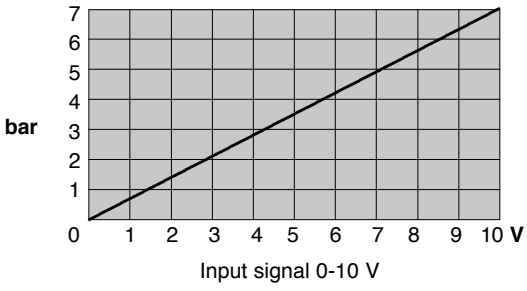
(*) Volume 30 cm^3 • @ P = 8 bar • (1) without fittings • (2) from 2 to 4 bar (rise time) • (3) from 4 to 2 bar (fall time)

Outlet pressure according to the analog voltage signal



Input signal 0-5 V

Outlet pressure according to the analog voltage signal



Input signal 0-10 V

IDENTIFICATION CODE

E	P	R	0	1	0	0	A	0	0	0	0	

INLET PRESSURE RANGE

0	1-8 bar
1	1-16 bar

KEYBOARD AND DISPLAY OPTION

A	Without keyboard and display
D	With keyboard and display

ELECTRICAL CONNECTION TYPE

0	IP62 male D-Sub 15 poles
1	IP65 male Hirschmann 11 poles
2	IP65 male Hirschmann 6 poles
3	IP65 male Italconnectors IPS02A 12 poles

SUBPLATE TYPE

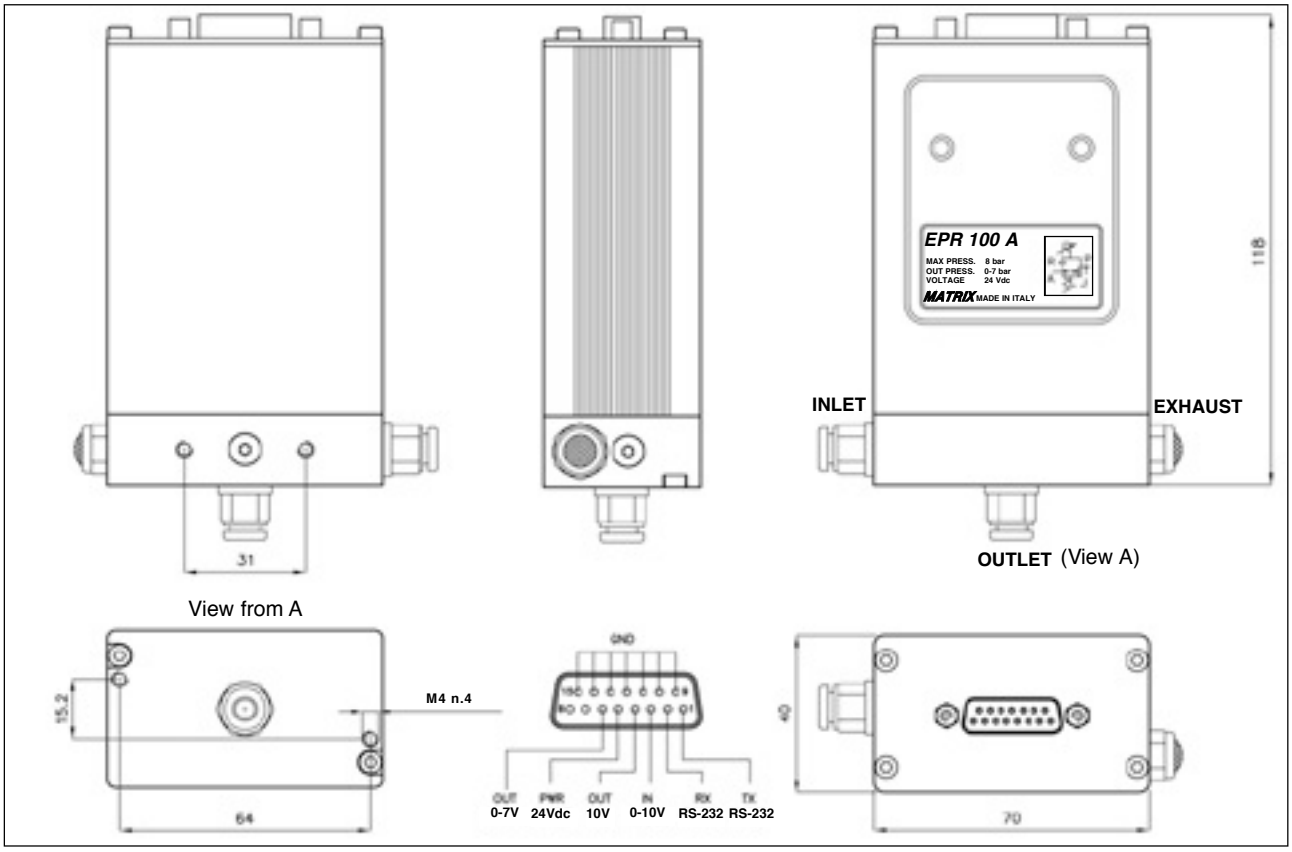
0	Standard

OUTLET PRESSURE RANGE (REGULATED)

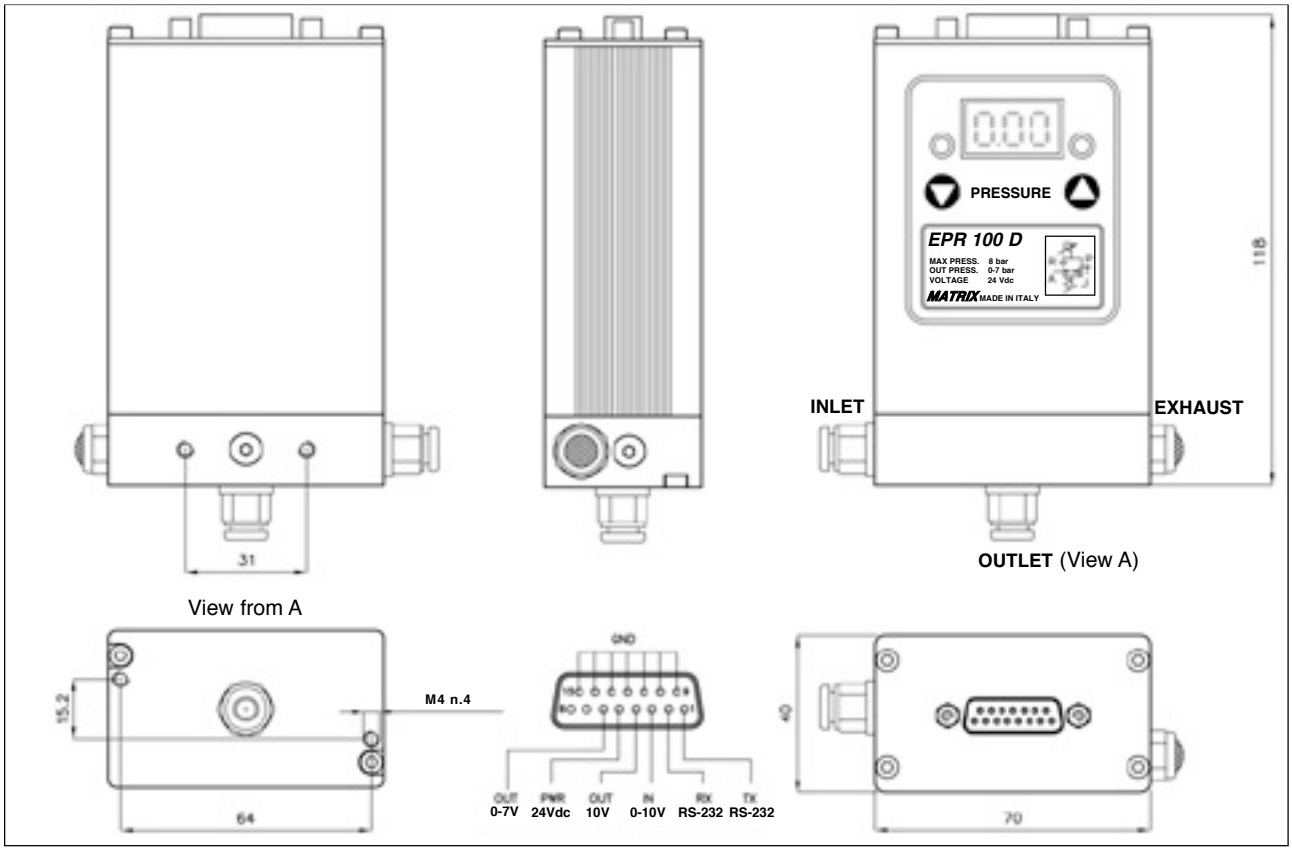
0	0-7 bar
3	0-12 bar (1-16 bar inlet pressure range only)
6	0-5 bar

INPUT TYPE

0	0-5 Vdc, 0-10 Vdc, RS-232
1	0-5 Vdc, 0-10 Vdc, RS-232, 4-20 mA



EPR 100 A



EPR 100 D

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